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PAPERS READ
BEFORE THE
ROYAL GEOGRAPHICAL SOCIETY.

ART. I.—*On the Monuments and Relics of the Ancient Inhabitants of New Spain.*—Communicated by Captain VETCH, Royal Engineers, F.R.S.—Read Nov. 28, 1836.

HAD none of these been preserved to our days, the study of the history and condition of the ancient inhabitants of New Spain would have deserved as little interest and attention as the history and condition of the ancient inhabitants of New Holland or Van Diemen's Land. The case, however, is far otherwise, for the pyramids of Teotihuachan, Cholula, Xochicalco, and Papantla, and the edifices of Mitla and Palenque, are erections of a magnitude to indicate they could *only* have been constructed in a country teeming with population, and submitted to a well organized government.

If we take, for example, the pyramid of Cholula, we learn from Humboldt, that it stands upon a square base, each side of which is about 480 yards, while the height, in its original state, was probably not short of 180 feet, or one-eighth of the base line; and if we next assume that the slopes were formed at an angle of 45°, and that this truncated pyramid was divided into its four stages or stories, by means of three terraces, each 30 yards in breadth, we shall find the solid contents of the structure to amount to the enormous quantity of 7,146,000 cubic yards; and if the writer is to judge of this pyramid from those of Teotihuacan, the whole must have been cased in a smooth but hard coat of stucco or cement, so that without taking into account the edifices which adorned the summit and other parts, some estimate may be formed of the labour and expense bestowed on this vast pile, and at the same time we are led to conclude, that the people which could spare hands for such an erection, must have been numerous, and that the nation which submitted to so heavy a tax, must have been under an entire subjection to order and government; and, on the other hand, that the government must have possessed great au-

thority, and great means, and that it was capable of long continued exertion.*

Robertson, in his History of America, but partially informed on many points, eager to generalize, and to adopt a theory of the passage of mankind from savage to civilized life, is constantly misjudging and depreciating the claims of the original Americans to an attainment of the arts and condition of civilized life, and will hardly allow that any monuments exist of the works of man deserving of notice; and though under the necessity of admitting the pyramid of Cholula, he describes it as nothing more than a mount of solid earth—but what more remains of Babylon? and where shall we find such another artificial mount of solid earth?

With respect to those monuments which have just been enumerated, it is to be observed, that they were not erected at or near the epoch when the country was first visited by the Spaniards, but at that time (with the exception of the pyramid of Cholula) they were then in the same ruined and deserted state as we now find them; and the time and manner of their destruction and abandonment seem as much wrapt in obscurity as those of their origin and construction, notwithstanding the annals of the Alcohuayan empire are considered to reach to the end of the twelfth, or beginning of the thirteenth century.

It is therefore very important to draw a great line of separation between these more ancient monuments of New Spain (believed to have been erected under the Toltec empire) and those monuments erected in or near the city of Mexico, from the period between its foundation in 1325, and its destruction by Cortes in 1521. These last, belonging exclusively to the tribe of Astecs, or Mexicans, may be described as Astec monuments. I have not been able to understand why Baron Humboldt describes the palace of Mitla, and other relics in the south of New Spain as Astec monuments, since it is most reasonable to suppose that such were not only constructed, but also in ruins before the Astecs had carried their power and conquests so far south. As however the Astecs continued for one century after the foundation of their capital, but an obscure tribe of the Alcohuayan empire, of which Tescuco was the capital, the term Alcohuayan would better express the monuments of Anahuac, from the twelfth century to the arrival of the Spaniards.

The Toltec and Alcohuayan monuments, though belonging to ages far apart, yet present the curious coincidence of both abounding in pyramidal erections, and though the origin and destruction

* Major Rennell has adopted 231 yards as the length of the side of the base of the great pyramid of Ghizeh, and elsewhere he gives his opinion that the monarchs who erected the pyramids of Egypt must have possessed greater resources and power than what they derived from that country alone.

of the pyramids of Teotihuacan are alike lost in the remoteness of their antiquity, the same species of edifices nevertheless continued to be erected up to the date of the Spanish invasion; and this fact is interesting, in seeming to show that the second period of refinement and prosperity in Anahuac was erected upon, or had grown out of the vestiges of the arts and institutions handed down from the first epoch. It has been stated that the great pyramid of the city of Mexico was formed on the model of those of Teotihuacan, but if the descriptions and drawings of that of Mexico can be relied on, it would *not* be easy to conceive pyramids less alike than these are. But the fact is, the Alcohuans and Astecs continued to build temples in the form of pyramids, because they maintained doctrines, and creeds, and institutions modelled on those of the Toltecs, who first erected temples of that form.

Between the more ancient and the more modern pyramids of New Spain, there is, however, a vast difference in point of size. The first being of the most imposing dimensions, whereas the latter would not particularly arrest attention. If we are, therefore, allowed to form an estimate of the power and civilization of the Toltecs, compared to that of the Astecs, from the character and design of their respective monuments, then we must conclude that the Toltecs had attained a far greater degree of power, wealth, and knowledge of the arts, than that acquired by the Astecs, under Montezuma the Second.

My object, however, at present, is not to investigate the history of the Toltec and Alcohuayan people or empires, but rather to show that the monuments of the first are of a nature and epoch to excite a strong interest, and deserving of being studied. It is, indeed, to be urged, on the other hand, that huge pyramids of solid earth are no great proofs of advancement in the arts of civilized life; I have, however, endeavoured to show what these do appear to prove. But amongst many other indications of progress in art and science, the most convincing fact will probably be, the perfection they had arrived at in measuring the year, which, it may be noticed, they made to consist of eighteen months, of twenty days each, to which were added five odd days, and that at the end of fifty-two years they introduced a period of thirteen days to complete their cycle; and Gama* with some success endeavours to prove that they introduced thirteen and twelve days alternately to their cycles, which would indeed reduce the measurement of the year to the degree of exactness at present followed in Europe. If we admit the arguments of Gama, they show the use of the second cycle of 104 years, and furnish evidence to prove, that it would require long continued and accurate observations of the heavens,

* Don Antonio de Leon y Gama, ‘Descripcion Historica y Cronologica de las dos Piedras, &c.’—Mexico, 1797.

and a careful record of the same, to enable them to arrive at the conclusions they did, and to employ cycles of such long duration as fifty-two and one hundred and four years.

In geographical extent it will probably be ascertained, that the Toltec monuments may be traced from the Isthmus of Darien to Chihuahua, and that their language prevailed, or was at least known to the same extent, about 2400 miles.

In the State of Yucatan, pyramids, and other remains are said to be numerous. The ruined cities near Palenque, in the State of Chiapas, are of great extent, and of a very imposing character. In the State of Oaxaca are the ruins of Mitla and others. In Anahuac (or the Valley of Mexico) ruins and remains prevail to a great extent; near Zacatecas are the remains styled by the Spaniards *Los Edificios*, and in the State of Chihuahua are the *Casas Grandes*. Near Maconi and the river Panuco are the ruins of two cities; and besides those already described by travellers, there are many others to be noticed, and I have no doubt a great number still to be discovered.*

If we suppose all these monuments to have been the work of the Toltecs, or of kindred tribes to them, they would prove some guide as to the extent of their empire, and their greater frequency and scale in some places might be considered to indicate the seat of empire, or of power and dense population; and on this principle of reasoning, we might be induced to place the first and great seat of empire in the State of Chiapas, and the second at Teotihuacan.

Notwithstanding all that has been written on the subject of the monuments of New Spain, little progress has been made in coming to any satisfactory conclusion in regard to them. The field of investigation is a wide one and still open, and it is but now for the first time, from the number of scientific inquirers, and the liberty afforded them, that we may expect to acquire sufficient data on which to found our researches.

The plan of investigation to be followed would be, first, to fix geographically the sites of all such monuments, and secondly, to have them carefully examined in detail, dimensions taken, and drawings made of them, and occasionally excavations.

Having premised so much generally on the monuments and relics of the ancient inhabitants of New Spain, I now proceed to notice a collection of stone figures from the banks of the river

* Since the above paragraph was sent to press, I have received a letter from my friend General Yberri, of the Mexican service, and a corresponding member of this Society, stating that he was proceeding, by order of the government, to survey and make drawings of the ruins of a great and ancient city of the Indigenes, which had just been discovered (accidentally) in the mountains, about eight leagues from Jalapa, in the State of Vera Cruz.

Panuco, in the ancient district or country of Huastecas. These figures were procured by Mr. Francis Vecelli, while making a plan of the river Panuco and its banks, and purchased by me of him at Tampico, in the year 1832, and are now submitted to the inspection of the members of the Royal Geographical Society.

I shall first enumerate the figures, and then offer such remarks as have occurred to me in reference to them.

1. Male figure, with high conical cap, nearly complete, executed in shelly limestone.

2. Female figure, with ornamented head-dress, with low conical top, ear-rings, and lappets; on the reverse, carved simply but tastefully, in a fan, or lotus-fashion, in siliceous limestone.

3. Female figure, nearly complete, with conical cap, carved lotus-fashion on the reverse, in calcareous sandstone.

4. Female figure, nearly complete to the knees; from the neck to the hip-joint the proportions appear good. Head-dress, with conical top, and carved lotus-fashion on the reverse, in siliceous limestone.

5. Female figure, nearly complete, much corroded, high conical cap carved lotus-fashion on the reverse, in siliceous limestone.

6. Small female figure, with conical cap, in limestone.

7. Female figure, with conical cap, the base rounded instead of being square, like the previous ones; in shelly limestone.

8. Female figure, with conical cap and rounded base, in shelly limestone.

N.B. The head-dress of the two last resemble very nearly what I have observed in some Cingalese and Burmese figures.

9. Female figure, with ornamented conical cap, Ethiopian countenance, in calcareous sandstone.

10. Female figure, nearly complete, with conical cap, in calcareous sandstone.

11. Face (good). Eyes hollowed out for the insertion of gems, or plates of gold (head-dress restored).

12. Face and breast of a female figure; thick lips; much corroded; in limestone.

13. Male figure, with a species of helmet, in siliceous limestone.

14. Female figure, very rude, no other head-dress than a fillet, in calcareous sandstone.

15. Female figure, mantled and hooded, very rude, in limestone.

16. Figure, very rude, in siliceous limestone.

17. Female figure, with an infant on the shoulders of it; calcareous sandstone.

18. Figure, probably male (Herculean or extra size); from the waist to the calf of the leg clothed and ornamented. It is important to observe that the dress of this figure is almost identical with some of those formed of stucco in relief in the ruined city near Palenque, at the distance of near 600 miles from the Panuco.

19. Figure of a monster, part man, part fish, leaning on a staff, in shelly limestone.

20. Nondescript figure, bearing another on its shoulder, in siliceous limestone.
21. Circular stone, with a human face, very lightly relieved, in calcareous sandstone.
22. Cylindrical stone, with a grotesque face on it, in siliceous limestone.
23. Colossal head of a bird, in shelly limestone.
24. Large bull-frog, in calcareous sandstone.
25. Spherical stone, much carved, but much eroded, in limestone.
26. From another part of the country.
27. Two heads on one stone. I found this and another, accidentally, in my first journey up the country of Huastecas (1824).
28. Small figure, crouched and mantled, much wasted or eroded.
29. Small head, with very prominent features, similar to many of those figures from the walls of Palenque, in calcareous sandstone.
30. Small head, with head-dress, in calcareous sandstone.

With respect to the age or epoch of the figures enumerated, there is no tradition; and we can only form a rough estimate of the same, by observing the erosion, or atmospherical waste, they have undergone in a tropical climate. Those figures formed of shelly limestone are curious, from the falling out of the softer matter; indeed, as much so as I ever observed on the surface of any native rock. In those figures formed of calcareous sandstone of a hard and gritty nature, the waste is nevertheless considerable, and has produced a small dimpled surface, which may be well observed in figure 24 and some others, and will, no doubt, convey to the minds of all observers the impression of great antiquity. In figure 18, though of a very hard stone, the waste in some parts has been very considerable, as may be seen by comparing them with other portions of the same carving. Nos. 21 and 28 present very faded or softened lines, giving every impression of great waste and age; and in some others the projections of little wens and veins show partly the depth of erosion. Could we compare these stones with others of a like nature and climate, and of a known age, we might approximate pretty nearly to the times at which they were fashioned. Judging from my own observations and impressions, I should have little hesitation in pronouncing some of them to be at least a thousand years old, and others probably two thousand.

Whatever may be the absolute age of these figures, we may with safety ascribe them rather to the Toltec than the Alcohuan epoch, not only from their appearance of age, but from the circumstance, that the province of Huastecas had not partaken, like that of Anahuac, of the second dawn of civilization; but, above all, from the perfect similarity which figure 18 bears to the remains at Palenque, indicating that both were fashioned when

similar creeds and institutions prevailed, and that these extended from the banks of the Usumasinta to the Panuco.

The figures are mostly female; and the most novel, as well as extraordinary circumstance exhibited, is the character of the head-dress, expanded to a great size behind, with a square front, and conical top more or less elevated. Did these represent the dress of the people, or are they symbolical of some deity, or great personage among them? These are the first and only examples of this species of head-dress I have seen represented among the sculptural relics of New Spain, though I have no doubt others will be discovered; and the character is so extraordinary, that it may lead to connect not only many remains of the New Continent, but also those of the two Continents, should it really prove that the knowledge of the New World in early periods flowed from the Old one.

There is one remark which applies to nearly all the figures—viz., whether whole lengths or half lengths, they are terminated below by a considerable piece of unshaped stone, presenting no base for the support of the figure, and therefore showing that they were intended to be built into walls or platforms.

There is another general remark to be made—viz., that they are geological specimens of the nearest rocks to which they were found. Rocks on the banks of the Lower Panuco are scarce; but when they occur, consist of limestone and sandstone passing into each other, alternating with each other, and with friable or loose beds of shale and soft sandstone. The harder portions rise chiefly in slabs or layers, too thin for sculptural purposes, as will be seen from an inspection of several of the figures, and hence some ingenuity was required to give relief to the prominent parts. For instance, the nose of figure 2 is formed by cutting deep on each side of it. Where the stones have been obtained of more substance, more freedom and roundness may be observed, as in figure 4, where the trunk is in very good keeping.

If the figures under consideration are to be considered as specimens of the art to which the country and age had attained, a very low estimate must be formed of the civilization of the people. But gathered at random, it may be, that these are no more specimens of attainment of the arts, than country sign-posts and grave-stones would be of the same in this country. To judge correctly, we must know the design and intended application of the figures, before we can pronounce the people rude and ignorant. This is, however, a subject on which we are constantly mistaking the attainments of ancient nations, by comparing their monuments with those of Greece and Rome. It became a taste or fashion with those nations to produce copies after nature of the human form, and the nearer they approached nature in her happier moods,

the more successful were their aims and intentions. But with the nations of Asia, which had not conceived the merit or value of imitating the living form, their intention was rather to depart from nature, and engraft exaggerations and peculiarities, to denote particular deities, heroes, or law-givers, and these figures were at once symbolical and historical; and thus, the huge and hideous, though well-executed stone figure, dug up in the square of the city of Mexico, in the year 1790, besides being symbolical of two or more divinities, probably contains a short history in the variety of carvings about it, and the complication of the parts is such, as must have rendered it most difficult to execute, from the original design; and although exhibiting no grace or taste, fulfilled the intention, and confers no small credit on the artificer of it.

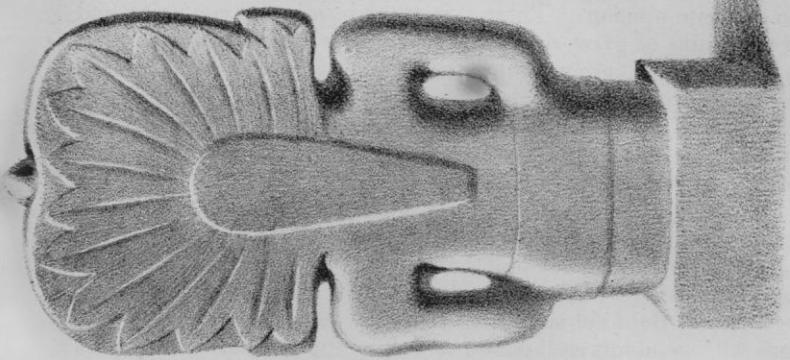
Where the design is evidently and solely to copy nature, the success of the effort is unquestionably a proof of the state of the art or skill of the artist, and in this point of view, the body of figure 4, and the face of figure 11, may be taken as favourable samples, due allowance being made for the nature of the materials.

The features of the face are very different in these figures, although the general character is that of high cheek bones and thick lips. The foreheads are high and broad. Indeed, in some of the small terra cotta heads I procured from Teotihuacan, the forehead is almost too largely developed to be natural. What then becomes of the observations of Humboldt in his researches? "It is no doubt from following this standard of beauty, that even the Asteç people, who never disfigured the heads of their children, have represented their heroes and principal divinities much flatter than any of the Caribs I saw on the Lower Orinoco." For my own part, most of the figures I have procured or seen in New Spain, so far from justifying the above remark of Humboldt, just lead me to opposite conclusions.*

The value to be attached to the present collection is to throw some light on the condition and extent of the Toltec empire, by affording the means of comparing the remains on the banks of the Panuco with those of other parts of the same continent, and also with the relics of the Old World, should it have happened that the Toltecs derived their knowledge and civilization from thence. This last is an important question in the history of man. I was

* The modern traveller in New Spain must own at every step his obligations to Humboldt, for directing his attention to almost every point of interest, and he will have many occasions to be astonished how so much and such diversified information could be amassed by one man in so short a space of time. The subject was, however, too vast not to leave room for omissions in some parts, and equivocations in others; and to supply these deficiencies, the researches of the modern traveller are to a great extent limited, and at the risk of appearing to cavil at the writings of a traveller highly and justly celebrated.

Mayaean Antiquities.
Front and back view of the Female Figure marked No. 2, described at Page 9.



rather disposed to believe at one time, that whatever knowledge and civilization the Toltecs possessed was of American growth; but the numerous pyramidal erections would rather countenance the opposite opinion. These structures in very flat countries, and on the banks of great rivers, as those of the Nile, the Euphrates, and the Ganges, are appropriate and imposing in their character, and may have had their origin, as retreats for the inhabitants from floods; but no such effects or uses could apply at Cholula and Teotihuacan, where mountains tower above them, in their near vicinity, to the height of 10,000 feet.

Plate, No. 1—Exhibits a front and back view of the stone figure (No. 2) from the banks of the Panuco. The front view is a good sample of the style of head-dress characteristic of most of these figures—certainly very extraordinary, and probably the first specimen of the kind submitted to public notice. The large earrings with pendants or lappets, as well as the position of the arms and hands, are also characteristic; while the back view shows the fan-like carving, common to four of the figures, and most likely emblematical.

Plate, No. 2—Presents drawings of heads in terra cotta, from the ruins of Teotihuacan. These appear all to have formed ornaments of, and to have been broken from, articles of coarse domestic pottery, and are introduced here to show that the arts could not have been very low with a people who, with such coarse materials, and for such common purposes, could fashion heads on so small a scale, exhibiting so much character and expression, as in figures 1 and 2.

Figure 1 seems intended to show a peevish male countenance of sixty or seventy years; and that of No. 2, the emaciation of extreme old age, which may sometimes be observed in subjects of warm climates.

Figures 3 and 4 are specimens of heads with features common to that of great numbers found at Teotihuacan, and may therefore have resembled the people by whom they were formed; their chief peculiarity seems to consist in the size and expansion of the forehead.

While the preceding remarks were passing through the press, I was informed that Dr. Von Martius, of Munich, had printed a paper in the Transactions of the Royal Academy of Bavaria, which threw doubts upon the existence of the Toltecs as a distinct nation. I have not read that paper, but subjoin this short notice in order to throw as much light as possible on the subject:—

Summary Notice of the Toltec People.—The arrival and settlement of the Toltecæ on the borders of Anahuac (Valley of Mexico) is generally reported to have occurred in the seventh century of the Christian æra.

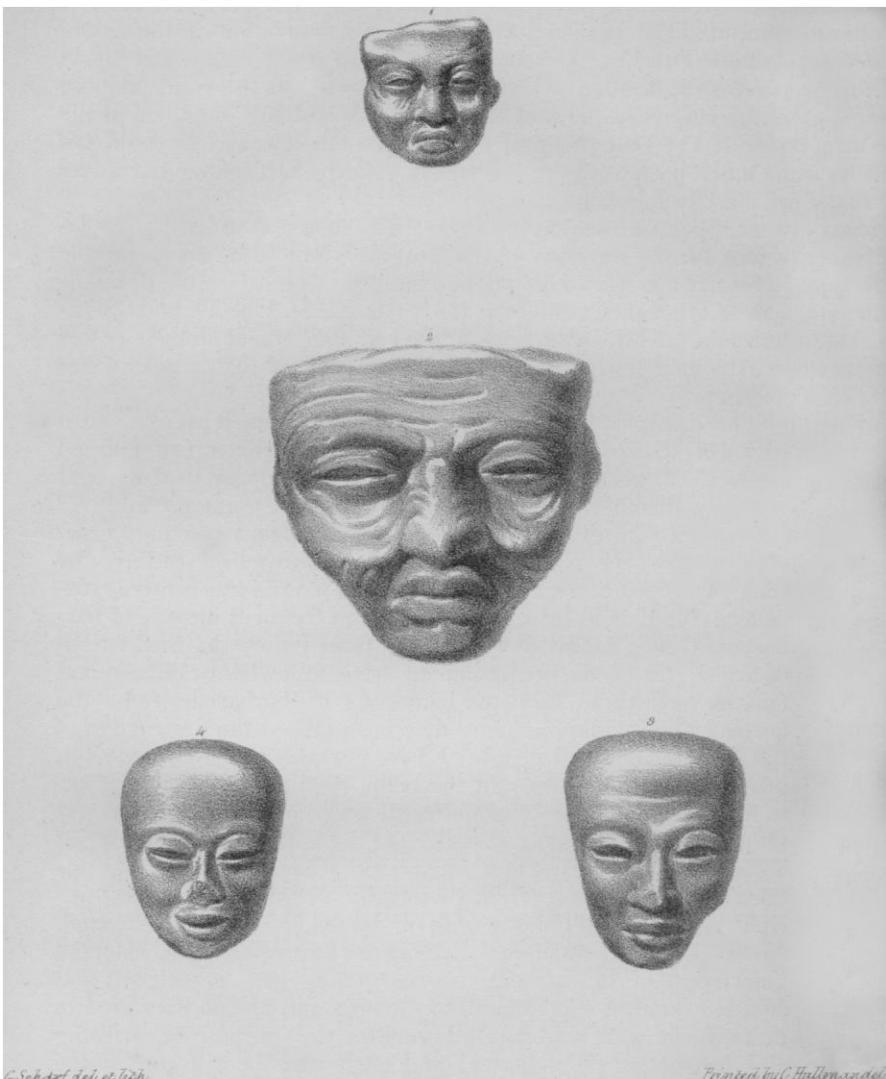
Clavigero, who compared several authorities, and made his own computations, has fixed the date of the foundation of the city of Tollan (Tula), and the commencement of the Toltec monarchy, in the year A. D. 667; and the same author places the ruin and close of the empire at the period of the death of King Topiltzin in the year 1051; remarking very justly that the latter event could not be much postponed, in consistency with the succeeding narratives of the Chechemecas and Acolhuas.

It appears to me that the period of 384 years, assigned by Clavigero for the duration of the empire, is much too short, for the necessary increase of population and resources to enable the Toltecs to erect such edifices as the pyramids of Cholula and Teotihuachan, and that the date of the commencement of their power in Anahuac must have occurred much earlier than what he has fixed upon.

The destruction of the Toltec empire has been ascribed to a period of severe pestilence and famine, which almost extinguished the race. This account does not, however, appear to me reconcilable with other circumstances, nor is it an event probable in itself; since history hardly affords an analogous case of a great and numerous people being so nearly destroyed or scattered by such calamities *alone*. This catastrophe will be much more satisfactorily explained by referring it to the frequent inroads of barbarous Chechemecas and Otomies from the north, in the train of which incursions might indeed have followed pestilence and famine. Of these frequent incursions of barbarians from the north (to whose depredations may be ascribed the destruction of the Toltec cities and people) I have not seen any accounts; but many circumstances warrant the belief that it must have been so.

Xolotl, the leader of a powerful army of Chechemecas and Otomies, entered Anahuac, and fixed the seat of his monarchy at Tenayuca in the year 1170, and placed a barrier to farther irruptions of a like nature from the north. At this period the principal cities of the Toltecs were probably in ruins and deserted. Xolotl, however, appears to have fully appreciated the arts and knowledge of the people amongst whom he had settled, and afforded them protection and encouragement, and endeavoured to unite them with his own followers for the purpose of civilizing and instructing them better; and such was the celebrity of the Toltecs for their skill in the arts, that whoever became able as an artificer, was honoured by the appellation of Toltec (Toltecalt): so that in process of time the terms Toltec and skilful artificer became almost synonymous.

From the death of Topiltzin in 1051 to the establishment of the Chechemecan monarchy in 1170, the country of Anahuac was probably in a state of anarchy and distress. The reign of



G. Schäfer del et lith.

Printed by C. Hallmann and Co.

Heads in Terra Cotta.
From the Ruins of Teotihuacan, Mexico.

Xolotl afforded rest and a return to regular government, and from that epoch the events recorded in history begin to thicken, and a somewhat continuous and consistent narrative then commences, and continues to the date of the Spanish invasion; verified in many instances by reference to recorded eclipses.

II.—*On Sind.* By Captain A. BURNES, E. I. C. Communicated by the Geographical Society of Bombay. *Read February 27, 1837.*

MUCH has been said upon Sind,* and I have perused most of that which has been published, as well as written. I purpose therefore to state concisely, the result of my reading and observations. I do not record my authorities, and I leave others to find out the points on which I differ from preceding writers. It is however due to Mr. Nathan Crow, of the Bombay Civil Service, to state that his "Account of the country of Sindé" appears, as far as I can judge, to have been the text book of all succeeding writers. It is a finished essay; and, though written so far back as the year 1800, remains to this day a model which, I think, will seldom be surpassed. It may then be asked what leads me to write on Sind? I do so because we have had many, and late, opportunities of increasing our information. In my printed work too, I have rather confined myself to the river Indus than the country through which it flows. It must be borne in mind, however, by all who peruse this paper, that it is one of results.

The country watered by the Indus is called Sind. This is also the name given to that river itself by the inhabitants. The designation is ancient, since Arrian† mentions Sindomana. To speak generally, that country, from the ocean to the confluence of the Panjáb rivers with the Indus, bears the name of Sind. That is from the latitude of about 23° to 29° N. and from 67° to 71° E. longitude. The banks of the Indus, however, as high as Sengar, which is in about 31° North, are sometimes called Sind. Without this addition, the area of the country includes about 100,000 square miles. On the South it has for its boundaries the province of Kach'h and the Ocean. On the East it has Rájwárá, or the country of the Rajpúts, as also the Daúdputrás. On the North it has the Panjáb and Kach'h Gandávah. On the West lies

* Sind, in Hindí *Sind'h*, is the land of the Sind'hu or Indus. In the ancient Persian and several modern dialects H is substituted for S, and the unaspirated for the aspirated letter. Hence Sind'hu became Heandu, Hindu, Hindú, Hind, Indu-s.—F. S.

† De Exped. Alexandri, vi., 16. It was the capital of Sambus.—F. S.